

Training Manual for the Private Inspection/Evaluation Assessments



Septic systems are inspected or evaluated for real-estate transactions by licensed individuals.

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General Introduction and Purpose

The Onsite Wastewater Treatment Program (OWTP) licenses private individuals to inspect, or evaluate onsite wastewater treatment systems (OWTS). These systems may have existed prior to the construction standards effective date of January 1, 1996, have been permitted according to state or county standards since January 1, 1996, or have been exempt from permit requirements due to acreage. Property owners are exempt from permit requirements, where permitting is administered under state standards, and the property is equal to or greater than 3 acres.

The purpose of an inspection/evaluation is to assess the current function of an OWTS under normal operational conditions for real estate transactions. The results of the assessment report should not be misinterpreted to conclude that non-compliance with the standard is a violation of state law. However, the system may be found in violation if the local health authority receives a complaint from an aggrieved party or adjacent homeowner that the system presents a nuisance, or imminent health hazard. The local health officials would conduct an investigation to determine whether a violation exists.

The information in an inspection/evaluation report should be used as a tool for individuals to make an informed decision regarding the current condition of the OWTS. Deficiencies noted may indicate a need for increased maintenance requirements to keep the OWTS functioning properly. It must also be clear to all parties that the assessment report does not impede the real-estate transaction from continuing. The inspector/evaluator only has a reporting obligation, and not a regulatory authority when submitting a report on the condition of an OWTS. Homeowners are not required to hire the inspector/evaluator to make repairs to a system.

Two Types of Assessments

Inspections and Evaluations are the two methods authorized to assess components and the current operation of an OWTS for real-estate transactions. The two methodologies are not interchangeable and should not be used in combination.

A new system whether permitted or exempt must be in operation for at least six months prior to performing an inspection, or evaluation. Generally a new system will require time for normal biological processes to develop in the tank and dispersal field area. It is typically not expected that a system will malfunction within six months of installation, if best design practices and construction standards were adhered to. However, a partial inspection may be completed relating to the tank(s) components, and setback distances only. A partial inspection shall not indicate that the system meets inspection criteria. If the system has not been operational for six months, no hydraulic load test (HLT) or evaluation may be performed.

Inspections

An inspection provides a comprehensive assessment of the OWTS and all accessible components on the day that the assessment is conducted and does not guarantee long-term functioning of the OWTS. The tank must be exposed to allow access to visually inspect the internal components of the tank. The tank may need to be pumped for inspection of the inlet and outlet components. If the tank and all internal components are not accessible the inspector must indicate that as a deficiency, and should recommend the tank be pumped for complete observation. If the tank is pumped prior to or during the inspection, the water level in the tank must be at operating level or at the flow line of the outlet to continue. In addition, the soil absorption area will be examined by introducing a normal anticipated daily wastewater flow amount. Note: On a report, Asterisks (*) indicate items critical to the proper operation of the system. Critical items should not be ignored and are essential to the long term operation of the system and may indicate a nuisance or public health risk.

Evaluations

An evaluation reports on the general condition of an OWTS based on visual observations and smell, including any signs of past or present system malfunction. This kind of assessment is not as comprehensive as the inspection, and does not include a HLT or uncovering the tank(s). A HLT shall not be performed with an evaluation; however, a small volume of water may be introduced to confirm whether all plumbing fixtures in the house are connected to the OWTS. The intent of the evaluation is to determine how the system appears to be functioning at the time of the assessment. Basically, observations that are sensory in nature are used along with professional knowledge. No other criteria should be used with this type of assessment. The soil survey is a tool, which provides general soil information within a defined area compiled by soil scientists. A soil survey is also used, and reports on possible soil limitations such as a water table being within the upper 5ft of a soil profile, and suitability of permeable soils. It is not intended to be site specific, however, it is generally expected that evaluated areas within a certain distance will have similar soil characteristics.

Assessment Procedures

Step 1: Contact the Homeowner or Representative

- a. Interview the homeowner to obtain information regarding the location and use or history of the system. This information is vital to provide an accurate and complete assessment of the system.
- b. If available, obtain a copy of any permitting information from the homeowner, authorized agent, representative, or local administrative authority.
- c. Ask whether multiple homes are connected to the system.
- d. Request that the area be mowed and tall weeds; brush, old vehicles, trash piles and excessive vegetation are removed prior to the site visit. This will assure that any surfacing effluent that could be masked by excessive vegetation or other obstructions will clearly be visible.
- e. Inform the homeowner that the sewage tank access covers must be exposed either by them or the inspector for a complete inspection to be performed. If the tank(s) cannot be exposed an inspection cannot be conducted. (This does not apply to evaluations).
- f. Advise the homeowner to limit their water use the day of and after the inspection in the event that a HLT is performed.
- g. Document the current weather conditions for the period within forty-eight (48) hours prior to the inspection/evaluation, specifically relating to conditions affecting soil wetness, which may have an effect on the current function of the system.

Caution: Be aware of the effects that wet weather conditions have on the proper operation of the OWTS. An assessment conducted after a heavy rainfall may make it difficult to determine whether the absorption field is functioning properly, or will accept an additional volume of water due to excessive soil saturation. If weather conditions cause excessive wetness in the absorption area, it is reasonable to reschedule the assessment.

Step 2: Conduct Site Visit

- a. Be sure that the property owner, occupier of home/renter, or their representative is aware of the day and approximate time that the assessment will be conducted.
- b. Make sure that access to a water source is available within the home to perform the water sample when appropriate, and insure that electrical power is turned on to the property.
- c. Make sure that the tank(s) are exposed for internal visual inspection.
- d. In some cases there are multiple signs of malfunctions; Document observations as completely and accurately as possible, and use the comment section on the forms as applicable.
- e. Draw a sketch of the site.

Step 3: Inspect the Treatment Unit

- a. Locate all treatment components, including the septic tank, aerobic unit, bio media treatment unit, wetland, and pump tank(s), etc.
- b. Verify that all wastewater is plumbed to the system including gray water discharges.
- c. Refer to the appropriate treatment unit checklist form(s).
- d. Check the lid and risers for cracks. Assess these components for water tightness.
- e. Remove the manhole cover and inspect the internal components as described on the inspection form. If components are not visible due to excessive solids, recommend the tank be pumped.
- f. If the tank is pumped prior to or during the inspection, make sure the water level is at the operating depth, the invert of the outlet tee or baffle, prior to performing the hydraulic load test (HLT).
- g. If components are not inspected because the tank needs to be pumped; inform the owner that the condition of components cannot be determined, and if components cannot be observed, it is considered unacceptable.
- h. On lagoons, make sure it accepts wastewater from only one home, and the berm is free of woody vegetation.
- i. Verify that there is a fence around the lagoon to prevent children and animals access.

Step 4: Assess the Absorption Field and Surrounding Area

- a. Before water is introduced to the system, first conduct a thorough walk over of the absorption field area.
- b. If the location of the field is suspected to be off site walk the boundaries of the property and make observations for obvious signs of a malfunctioning system. In some situations the absorption field may not be on the property that the system serves. Do not trespass on neighboring property. Obtain permission from the neighbor to cross their property for further assessment if necessary. If access to a neighbor's property cannot be obtained, and it is believed that the system is on

that property, indicate in notes that the location of the field is suspected to be off site.

- c. Look for wet spots or spongy soil, straight pipes, tall grass/weeds, black areas where no grass will grow or grass growth is uneven etc. These are what could be described as obvious signs of past or current malfunction.
- d. Determine whether surfacing effluent is flowing onto the property from an adjacent property. This could potentially be turned into a complaint investigation by the administrative authority, if the owner contacts them to file a complaint.
- e. Turn-up pipes and yard boxes will help with locating the absorption field for advanced distribution systems such as a low-pressure pipe (LPP) and subsurface drip dispersal (SDD).

Step 5: Perform a Hydraulic Load Test (HLT) Test (Inspections only)

During a HLT the inspector must be able to examine the plumbing configuration in a home and have access to all fixtures that use water. Access must also be available to the interior of the sewage tank in order to determine the effect of water usage on the tank. The purpose of the HLT is to determine the capability of both the sewage tank and the subsurface dispersal field to handle a water load. It may be necessary to introduce a dye element into the tank to trace flows and check for leakage.

- a. Determine that all waste water drain lines are attached to the sewage tank.
- b. Determine whether to use dye prior to HLT. (See step 6)
- c. New systems must be in operation for a period of at least 6 months to perform a hydraulic load test.
- d. Existing homes vacant more than 60 days must be back in operation for 6 months to perform the HLT.
- e. After thoroughly assessing the absorption area introduce water to the system to determine whether the field can accept the prescribed HL.
- f. Introduce water at the following rates.
 - 1. Home presently lived in and homes vacant up to 30 days*.
 - a) 1-2 bedroom 200 gallons water from all fixtures
 - b) 3 bedroom 250 gallons water from all fixtures
 - c) 4 bedroom 300 gallons water from all fixtures
 - d) 5 bedroom 350 gallons water from all fixtures
 - 2. Homes vacant 31 days up to 60 days
 - a) Double water application rate listed above.

***Add 50 gallons of water per each additional bedroom. Water should be introduced at a rate of approximately 5 to 10 gallons per minute.**

Homes equipped with Jacuzzi type tubs in addition to traditional showers or tubs should have water introduced to the fill water line on the Jacuzzi type tub in addition to the loads listed above in the standard HLT. **All sewage tanks must be at normal operating levels before the HLT is applied.**

- g. Water added to the system for well sampling should be accounted for when determining the flow for the HLT; this is to minimize the possibility of a hydraulic overload to the system during the assessment.
- h. Run no more than the required amount of water, indicated in fl above, into the system for the test. For **conventional systems** double the load when the home has been vacant for more than 30 days and no more than 60 days. Use one dose cycle **on alternative systems**, or no more than a 50 gallon dose volume. Large volumes of water should not be run through ATU's and bio-media filter units.
- i. **Do not perform hydraulic load test, on homes vacant more than 60 days.** Results from a HLT performed on a home vacant more than 60 days, may provide inconclusive and inaccurate information.
- j. During the test, watch how influent enters the tank. Determine if the water level rises above operating level at the outlet of the tank. Observe whether water is slow draining, or backs up into the inlet etc.
- k. If influent floods the tank, stop all sources of flow as quickly as possible. Document this condition and make accurate notes regarding what was observed.
- l. In the case of a straight discharge pipe, the inspector only needs to identify that there is a direct connection from the OWTS to the pipe. Adding dye in this situation would be appropriate. Do not assume that a pipe to the surface is connected to the OWTS. In some situations the pipe could be associated with a curtain drain, roof gutter spout, basement or garage floor drains, or foundation drain. So, be sure that what is reported is accurate. Referring to those as a straight discharge pipe would be inaccurate.
- m. To perform a HLT on a shared system it should be determined that easements are in place to insure access to the system. Whether it is the tank or the field, the inspector must have complete access to the system. When two homes share a field the HLT shall be used based on the criteria for the individual home that is inspected. For example, if there are two 3-bedroom homes, and one home is to be inspected, run the amount water required for one home, then write comments that the system is shared and the results may not be accurate. Do not double the load when the house has been vacant for 31-60 days. The system will continue to be in operation when the neighbor's home is occupied, therefore there is no need to increase the HL.

Step 6: Dye Testing

- a. Be conservative when deciding whether a dye test is necessary. Often it isn't necessary. When a system is not functioning properly, there are likely obvious visual signs that may be observed relating to current and past function of a system.
- b. Be aware of the effects that bleach in a system will have on the dye element. A high concentration of chlorine can create a false reading by dissipating the dye.
- c. Prior to dye test, contact DNR regarding the location date and time of test. This is to insure that no other tests are being conducted in the area that may interfere with DNR ground water tracing results.

- d. It is important to correctly interpret or understand the results obtained by performing a dye test. Observing dye after a dye test is normally a good indicator that there is a hydraulic connection between the tank and the soil surface near the absorption field, lake, pond or stream, or discharge pipe.
- e. An alternate dye test maybe performed on homes vacant more than 60 days only when the house is situated on a lot with limited setback distances and is adjacent to a lake or stream. The purpose for this alternate test is to rule out any direct connection to the body of water and the absorption field when the lot size appears to be too small. Apply no more than the total volume for 0-30 days. Vacant homes not meeting the criteria shall not be tested. The alternate HLT is only valid under the above mentioned situation, and cannot be used for any other reasons.

Step 7: Assessing a Private well and Water Sampling

- a. An above ground construction assessment must be performed and a water sample taken from a private drinking water source any time an OWTS assessment is conducted. A private drinking water sample is not taken if the OWTS is not assessed.
- b. Well construction standards only apply to drilled wells. Inspect the above ground construction of the wellhead using the form for well construction. Other sources of water may have a sample taken, but no construction standards apply. For example a bored well, sand point well, lake or stream and cistern. Observations from a source other than a drilled well should be noted in the comments section of the report.
- c. Check setback distances from the well to the treatment units(s), and absorption field.
- d. Take a water sample in accordance with requirements only if there are less than 8 connections to the water supply system. This means do not sample public drinking water sources.
- e. Bypass water softener or disinfection units if applicable when sampling.
- f. Within the house a drinking water sample should be taken from the point of consumption. This is to insure that the water supply system pipes between the well and the point of consumption is represented by the sample.
- g. From the kitchen sink with separate hot and cold water, or mixing faucets remove the screen from the faucet; allow water to run 2-3 minutes from each. If chlorine is detected in the water supply do not sample. In some cases the property owner or their representative may have shocked the well in advance of your assessment. Excessive chlorine residual in a sample cannot be submitted for analysis.
- h. If the results of the water sample returns positive for bacteria, advise the client that the well should be chlorinated and re-sample following a period of time at a minimum of 5 days after chlorination. Two consecutive samples must be satisfactory after chlorination for the water supply to be considered suitable for drinking. Advise the owner to disinfect the well according to proper protocols and procedures as recommended by a certified lab. It is not the inspectors/evaluators responsibility to disinfect the well. If a good sample cannot be obtained, there may be a problem with the wellhead construction, or there may be clues to the problem that are associated with the type of bacteria found.

- i. There are a number of factors that may affect well water quality, such as setback distances from the sewer system, cracked wellhead, unscreened vent etc. Therefore, completely fill out appropriate forms and comments section. If a satisfactory sample cannot be achieved recommend that the owner consult a reputable well driller.

Step 8: Prepare to Leave Site

- a. When completing the assessment, clean up the area where you worked. Return the site, as close to its original state as practical. Be sure that control panels are locked and in original conditions. Be sure that all lids are secure against accidental access.
- b. Be safe and practice good personal hygiene by washing hands and keep them away from the face. Disinfect and wipe off equipment used in the process.

Step 9: Complete Assessment Checklist Forms as Applicable

- a. Summarize the results of your assessment on the summary assessment form
- b. Fill out all appropriate forms for a complete assessment.
- c. Make sure that water samples are submitted to a certified lab within the required time.
- d. Copies of the reports must be submitted to DHSS and LPHA as required.
- e. Submit copies of all forms to your client.

Licensed Inspector/Evaluator Responsibilities

A licensed inspector/evaluator's role is to report the condition of the OWTS on the day of the assessment, which is not a regulatory function. Comments should not be written on the forms stating that the system is in violation of state law. Violations are generally not enforceable through real-estate assessments. However, if the authority receives a complaint from a neighbor or aggrieved person, the system may be found in violation and a notice of violation issued to the property owner after an investigation. Some counties may have ordinances that require correction of malfunctioning systems based on information from a real-estate assessment.

The client must be informed that repairs done on the site may require permits by the local or state administrative authorities, and if recommendations for repairs are made, the owner is not obligated to hire the current inspector/evaluator or anyone they represent to perform the necessary work. Insure that the client is aware that a construction permit may be required when repairs are needed. A re-inspection may only be performed when deficiencies have been corrected. Only the inspector who performs the original inspection can re-inspect the work performed. If a different inspector is hired, they must perform a separate complete inspection.

Onsite Wastewater Treatment Program Responsibilities

The role of the Onsite Wastewater Treatment Program is to provide training and license private individuals to carry out the function of assessing OWTS's for real-estate transactions. This program is not designed for licensed individuals to inspect new systems or for regulatory purposes. The focus of the licensing process is to assure the use of standardized practices, by state trained, competent, and knowledgeable people assessing the OWTS. Program staff will provide technical assistance regarding procedures and interpretation of inspection reports.

Complaints received against an inspector/evaluator will be reviewed to determine whether administrative action should be considered.

Inspection/Evaluation Checklist Review

These forms have been designed and formatted for quick entry of information and to be used as a checklist during an inspection or evaluation. All questions are written to have a *Yes* response if current state minimum standards are met for that particular OWTS component. When certain criteria of an OWTS component do not meet state standards and *No* is marked or clicked, then the system as a whole does not meet the inspection/evaluation criteria. For questions that have the word *Recommended* at the end and the answer is *No*, it does not mean that the OWTS component has not met state standards. In that situation, it means that the component or item is optional and not required by the state minimum standards.

OWTS Assessment Summary Sheet

- a. Everything at the top of this form must be completed except the latitude and longitude information. The DHSS would like to acquire the information if available; however, it is not a requirement.
- b. The type of assessment must be indicated by checking the appropriate box.
- c. The blank box on the right is for the inspector/evaluator to use for company name or logo information. This is also for optional use.
- d. In the facility information section the type of facility must be completed, and the number of bedrooms marked as reported by the listing. All other information in this section is optional and would be good to know if available.
- e. Information in system history must be completed. The most practical way to obtain the information is to interview the property owner, or their representative.
- f. Before performing a hydraulic load test: It is extremely important to know whether the system has been in use for at least 6 months to validate whether a hydraulic load test may be performed. A homeowner interview would be the best source to obtain the information. However, if you are unable to verify the use of the system, then the answer on the form will be no.

If the home is vacant for more than 60 days, or if the number of days vacant is unknown, the hydraulic load test will not be performed. In this scenario the home must be occupied for a period of 6 months prior to a complete inspection and hydraulic load test.

- g. The water supply section of the assessment form is for private wells only. The date that the water sample was taken and results are required. Re-sampling after a bad sample is at the option of the property owner. Before a well with a bad sample can be determined to have a satisfactory water supply two consecutive satisfactory samples must be obtained after disinfection at least 7 days apart. Only the inspector/evaluator who performs the initial sample will take the subsequent samples if needed. A different inspector/evaluator will need to perform the entire inspection/evaluation process under their signature on the report and all forms associated with it.
- h. Treatment/Dispersal section has a row of boxes which indicates an individual form for each box marked. There may be a combination of boxes checked. The separate individual form will provide details of what deficiencies exist which may affect the operation of the system, and the final outcome of the assessment.

When performing an assessment for a lagoon the top of the form will indicate inspection/evaluation. The lagoon form serves a dual purpose. When an inspection or evaluation is checked on the assessment summary form it determines whether an inspection or evaluation is performed for the dual purpose lagoon form. The difference relates to whether a tank is present, and how the tank will be assessed. When an evaluation is checked on the summary assessment form, and a tank is associated with the lagoon, it can only be noted as present on the form. No other criteria apply to the tank. When an inspection is checked on the summary assessment form, and a tank is associated with the lagoon, a full inspection must be performed on the tank using the appropriate tank inspection form. There will be a separate tank form and a lagoon form when an inspection is indicated.

If evaluation is checked on the assessment form and there is a septic tank associated with a lagoon, check only the lagoon box and OWTS evaluation in the treatment/dispersal section. Notice that you do not check the septic tank box with this type of assessment. On the individual lagoon checklist form there is an extra box to check regarding the presence of a septic tank. That box is checked under these conditions to indicate that there is a septic tank associated with the lagoon; however, no other tank information will be added.

The box next to dispersal field is checked along with the type of field below it. There are six different absorption field layouts and the individual form will identify the specifics. Notice that next to the discharge pipe it states unacceptable.

At the bottom of this section there is a box pre-checked as setback form. This box will always be checked because a setback distance form shall be used for both methods of assessing a system. It is not expected that the inspector/evaluator will know the exact boundaries of the property however; every effort should be made to determine approximately where the property lines are located based on information provided from the homeowner or their authorized representative or agent. A pre-inspection interview tool is important to use to help with questions relating to the location of the property lines, and the history of how the system was used.

When using the setback distance form the “NA” is to be marked on those items that the setback distances are not being verified. The “Yes” is to be marked for those items that meet setback distances. The “No” is to be marked for those items that do not meet setback distances. For example: A private well on the property. The setback distance for the related items listed below the private well need to be determined. If the setback distances meet the state standard, then “Yes” and “Acceptable” is marked. If the setback distances for the private well do not meet state standards, then the “No” and “Unacceptable” is marked and the distances are entered on the line next to that specific component.

For those situations where an OWTS setback distance is associated with an approved variance mark the box next to the item and enter the distance on the line. The overall assessment for that specific item will be acceptable. If there is no proof of an approved variance and the setback distance standard is not met then the overall assessment is unacceptable.

The last box on the treatment/dispersal section is OWTS evaluation. If the evaluation box is checked at the top of the assessment form the OWTS evaluation box is the only one checked in the treatment/dispersal section. This box is only for use when performing an evaluation. Do not check any of the other boxes when performing an evaluation; those

forms are not to be associated with the evaluation process. An evaluation will have at least 4 forms to submit as a complete report. Those forms are: The assessment summary form with evaluation checked, and the water supply if applicable, the setback distance form, and the OWTS evaluation.

A vegetative submerged flow wetland will only be inspected using the required checklist. An evaluation will not be allowed for this treatment unit.

- i. In the licensed inspector/evaluator signature section: The printed name of the individual and signature is required on the assessment form. The identification number issued by the DHSS must also be on the form. Each form should have a uniquely identifiable job number that you create. It can be a series of numbers beginning with 100 or the client's last name and date. Do not make the number too long or so cryptic that you cannot remember whose report it is.

Assessment Summary: This is the last part of the inspection/evaluation which summarizes the final outcome of the overall assessment from the working checklist forms. The information is based on the condition of the system at the time of inspection/evaluation. Setback distances will be marked either met or not met as indicated on the form. For inspections the reporting criteria is either met or not met as it relates to the current standards and specific deficiencies listed on the checklist. Evaluations have three categories which are, acceptable, unacceptable, or undeterminable. Do not use this section when the inspection box is checked at the top of the assessment summary form.

The last checkbox relates to the type of deficiency reported on the individual check lists. It could be a component deficiency in the form of a missing baffle or tee, or a cracked riser on a manhole. It may also be surfacing in the dispersal field. In some instances there may be both issues. The information gathered from the type of deficiency on the summary page provides a quick reference to the type of problem affecting the system.

The overall results will come from the forms used for OWTS inspection or evaluation.